

Broadband Mini-Loop

A Product of Alpha Antenna

Wholly owned by Productive Industries, LLC



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112 East Commercial Street, Pleasant Hill, MO 64080

Model – Mini-Loop

Specifications, Analysis, & Usage

OPERATIONAL SPECIFICATIONS

Specifications of this broadband digital mode Mini-Loop:

- Receive: Low noise characteristics for digital mode from 1.8MHz through 1GHz.
- Transmit: Support without a tuner for digital mode from 10MHz through 54MHz.

USAGE SPECIFICATIONS

- Deployable with quantum and/or spread-spectrum equipment.
 - o For equipment that simultaneously uses many frequencies.
- Missions that require Ground-wave and/or Skywave HF communications.
- Useful when an isolated solution is required that requires no counterpoise.

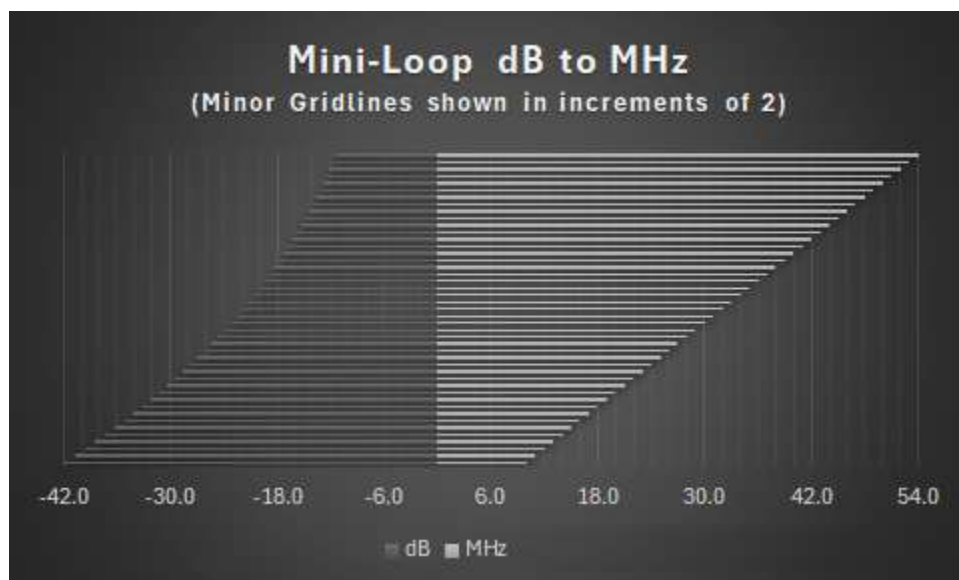
TECHNICAL SPECIFICATIONS

Option 1: 20W at 25% duty cycle, 10W at 50% duty cycle, and 5W for 100% duty cycle (digital modes).

Option 2: 100W at 25% duty cycle, 50W at 50% duty cycle, and 25W for 100% duty cycle (digital modes). Including but not limited to the MIL-STD-188 M110a digital communications mode that is rated at 25 watts continuous with bursts of 100 watts digital for up to 1 minute using the MIL-STD Data Modem Terminal (MS-DMT) and Automated Message Terminal (AMT) software applications.

ESTIMATED GAIN

(Based upon Field Strength Meter readings)



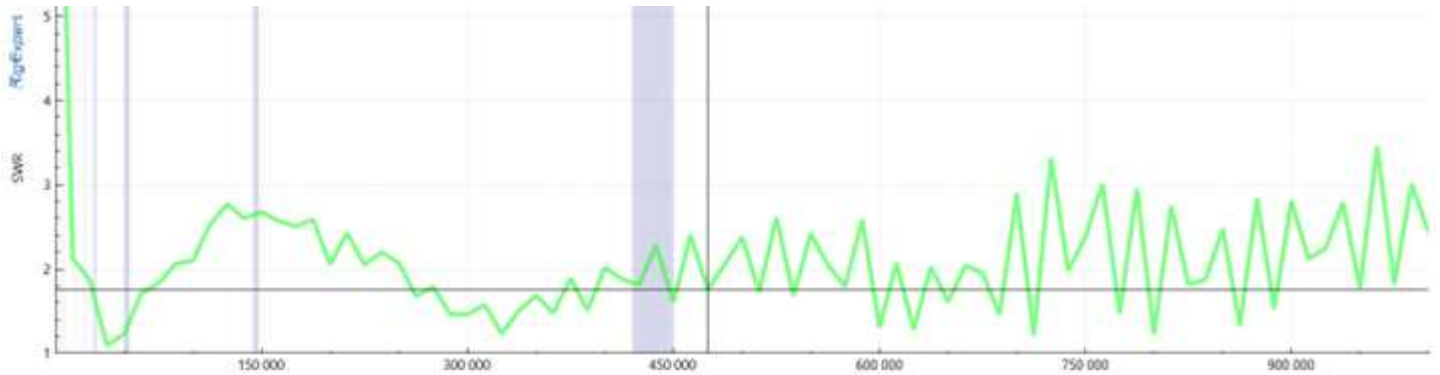
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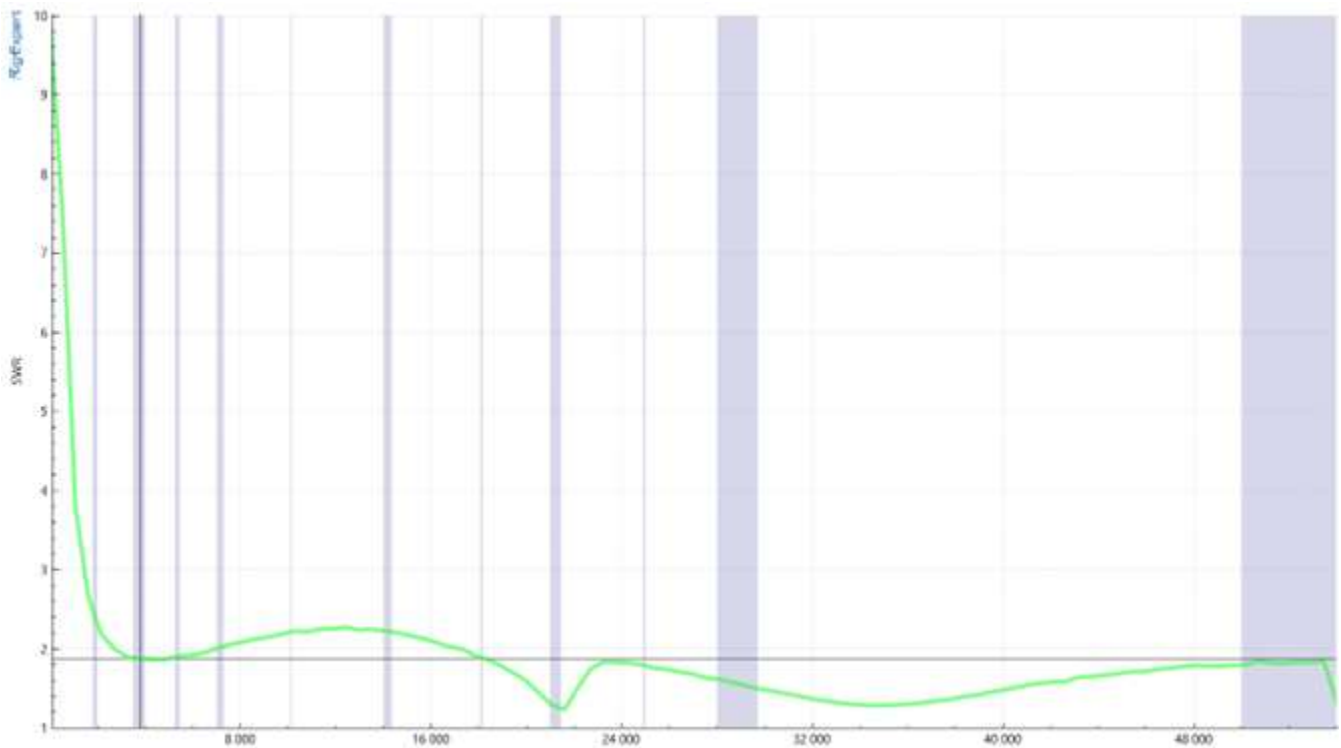
Analysis

The following results were nearly identical, whether taken indoors, outside, or in a backpack.

Analysis from 0-1GHz



Analysis from 0-54MHz



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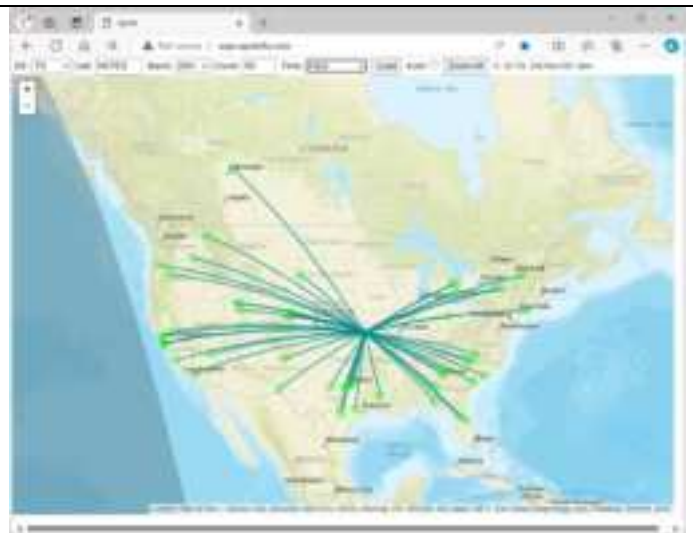
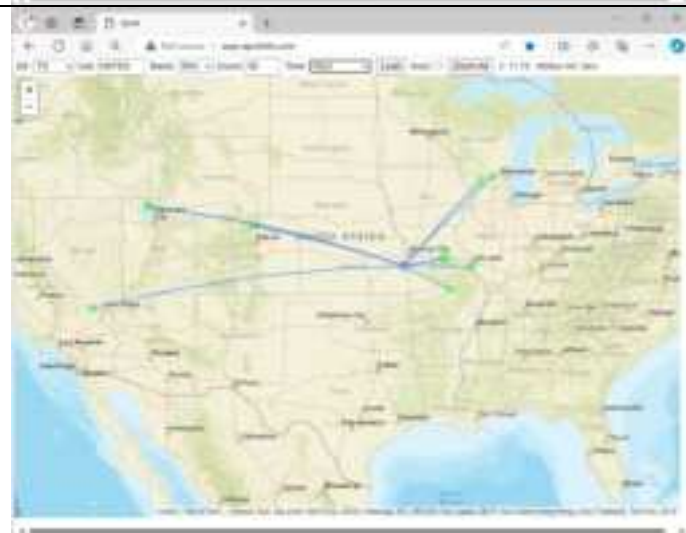
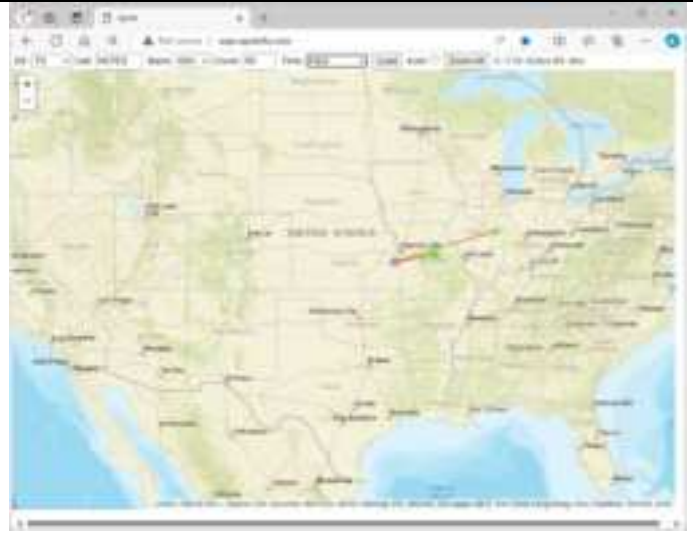
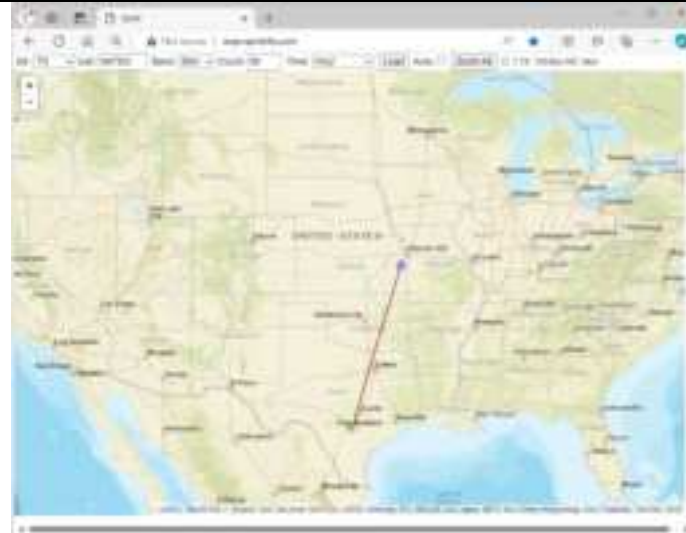
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WSPR TX Test at 250mw

For TX we purposely tested the loop while deployed between two metal buildings & at 250mw.

NOTE – TX efficiencies increase as power increases, which can lower the usable frequency.

80M, 40M, 30M, & 20M TEST RESULTS for the Mini Loop +



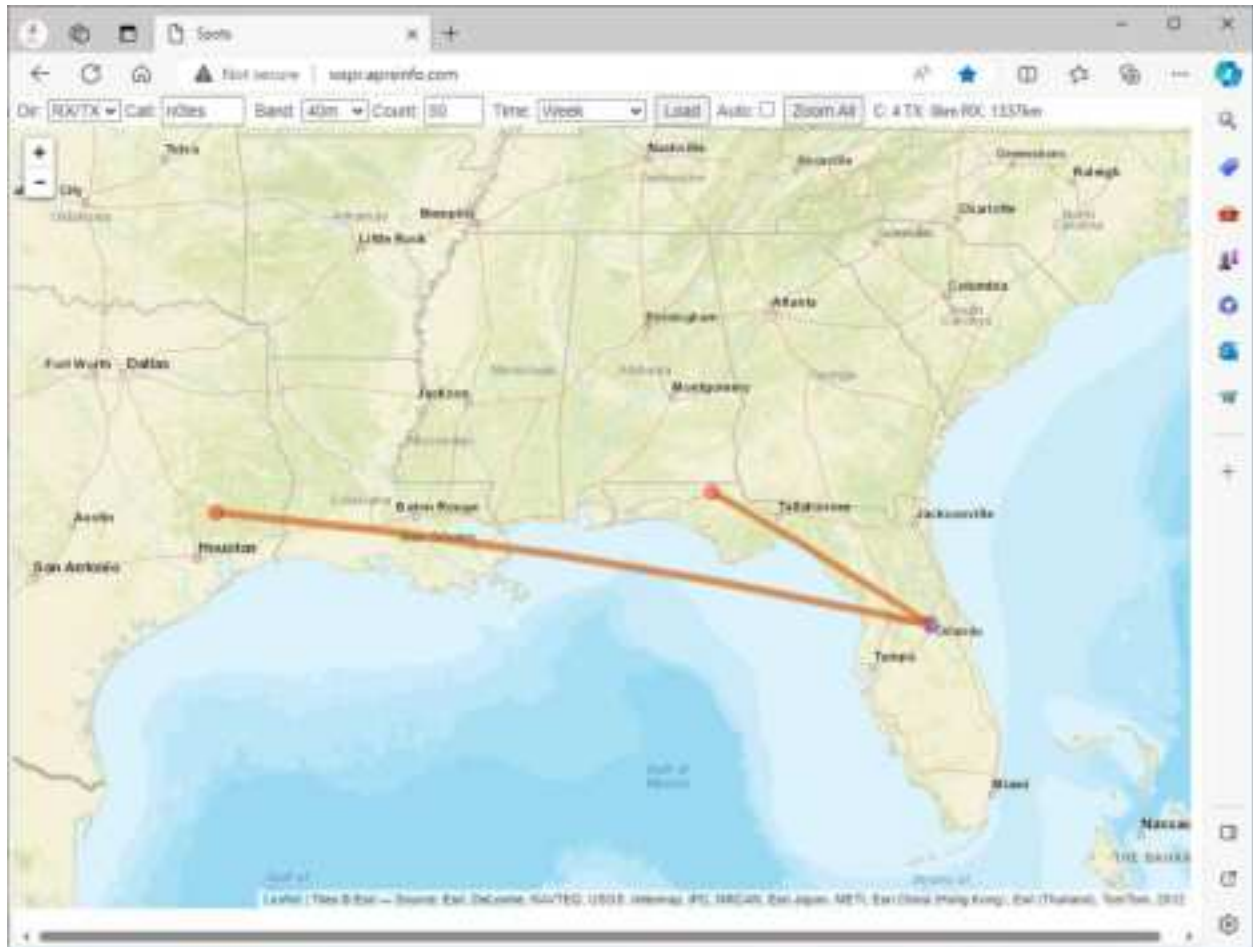
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WSPR 40M RX Test

For all RX tests we purposely tested the loop while deployed indoors and between floors of a multi-story building.

Max Range = 1337km

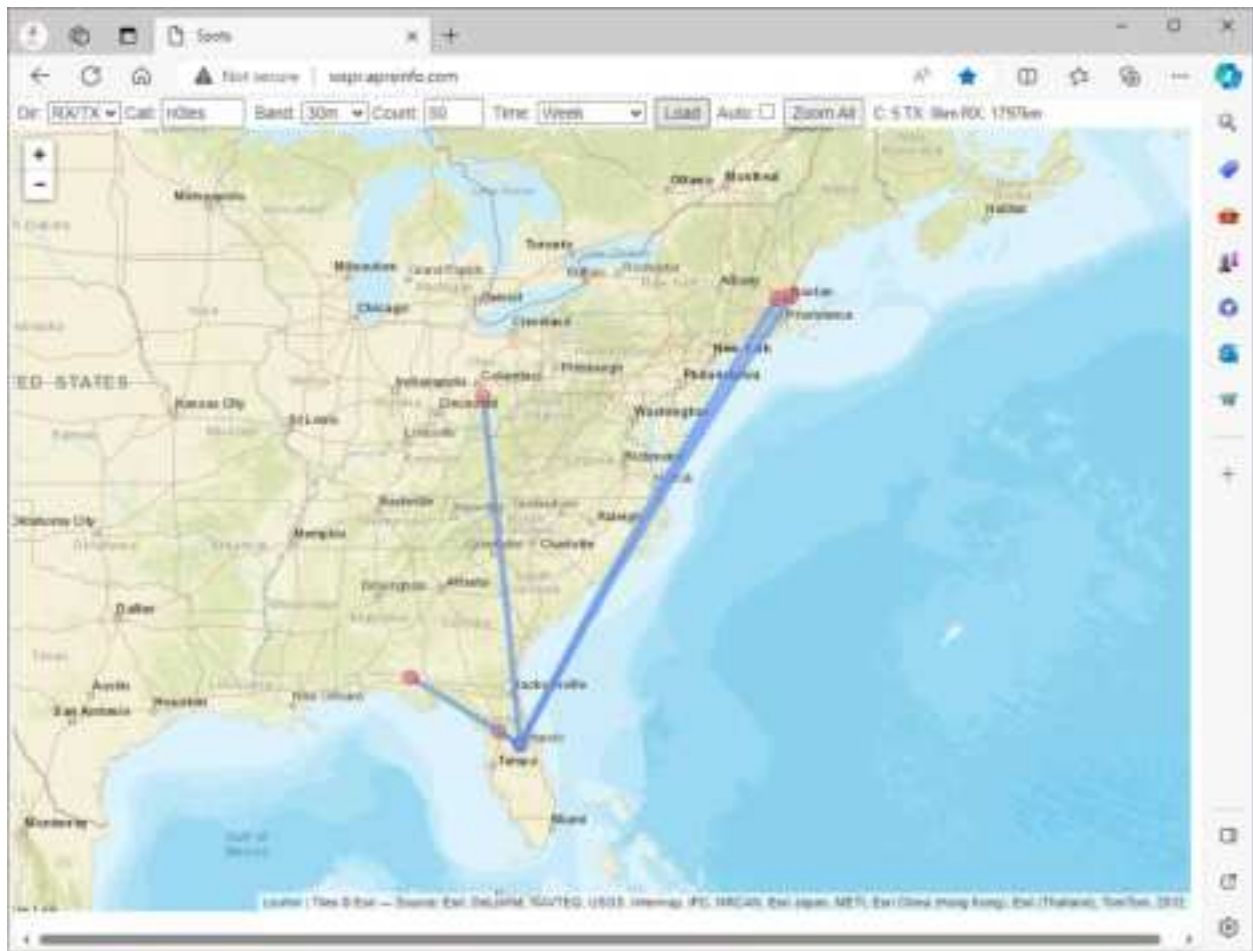


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WSPR 30M RX Test

Max Range = 1797km



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Max Range = 1838km

The screenshot shows the us3trap.net website interface. At the top, there's a navigation bar with a search icon, a home icon, and a list icon. Below the navigation bar, there's a search bar with the text "us3trap.net". To the right of the search bar, there's a "Filter" button. Below the search bar, there's a "Filter" dropdown menu with "All" selected. To the right of the "Filter" dropdown, there's a "Time" dropdown menu with "Week" selected. Below the "Time" dropdown, there's a "Load" button. To the right of the "Load" button, there's a "Auto" checkbox. Below the "Auto" checkbox, there's a "Zoom All" button. To the right of the "Zoom All" button, there's a "C: 27 TX 5m RX 100km" text. Below the search bar, there's a map of the United States. The map shows various cities and states. Green lines connect various cities to a central point in Texas, representing signal paths for a radio tower. The cities connected include Houston, San Antonio, Austin, Dallas, Fort Worth, Oklahoma City, Denver, Kansas City, Minneapolis, Chicago, St. Louis, Indianapolis, Cincinnati, Louisville, Nashville, Memphis, New Orleans, Miami, Tampa, Orlando, Jacksonville, Atlanta, Washington, Baltimore, Philadelphia, New York, Boston, and Detroit. The map also shows the Gulf of Mexico and the Atlantic Ocean.

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USAGE

Where secrecy is paramount, communication through unseen methods plays a crucial role. Some of the usage scenarios of clandestine antennas include:

1. Clandestine Communications in Cyber-Denied Environments:

- ✓ Context: In an era where internet-based communications are vulnerable to surveillance and attacks, intelligence operatives seek alternative methods.
- ✓ Scenario: Imagine a situation where an operative needs to communicate without exposing themselves to internet-based surveillance.
- ✓ Solution:
 - Physical Separation: Platforms physically separated from the internet can be used. These platforms are not susceptible to internet-based surveillance or attacks.
 - Radio Technology: Combine modern computer-based software with radio technology.
- ✓ Importance: Counterintelligence and law enforcement must adapt to these evolving communication methods.
- ✓ Countermeasures: Detect radio-based clandestine communications and secure evidence.

2. Operational Scenarios where concealment and minimizing visibility are critical:

- ✓ Inside a Parked Car:
 - Example: Monitoring a nearby building while parked outside.
 - Setup: Transmitter, receiver, and antennas positioned out of sight from windows.
- ✓ Between Floors in an Office Building:
 - Example: Operating from the third floor to the first floor.
 - Setup: Transmitter, receiver, and antennas positioned out of sight carried out of site under clothing.
- ✓ Out in the Open:
 - Example: Providing regional communications support while deployed in the field.
 - Setup: Transmitter, receiver, and antennas positioned out of sight inside a backpack.

Remember, clandestine antennas are designed to operate covertly, avoiding detection by adversaries. Their success lies in striking a balance between effective communication and maintaining secrecy with a right sized antenna.

All these solutions are enabled by the Broadband Alpha Loop.

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